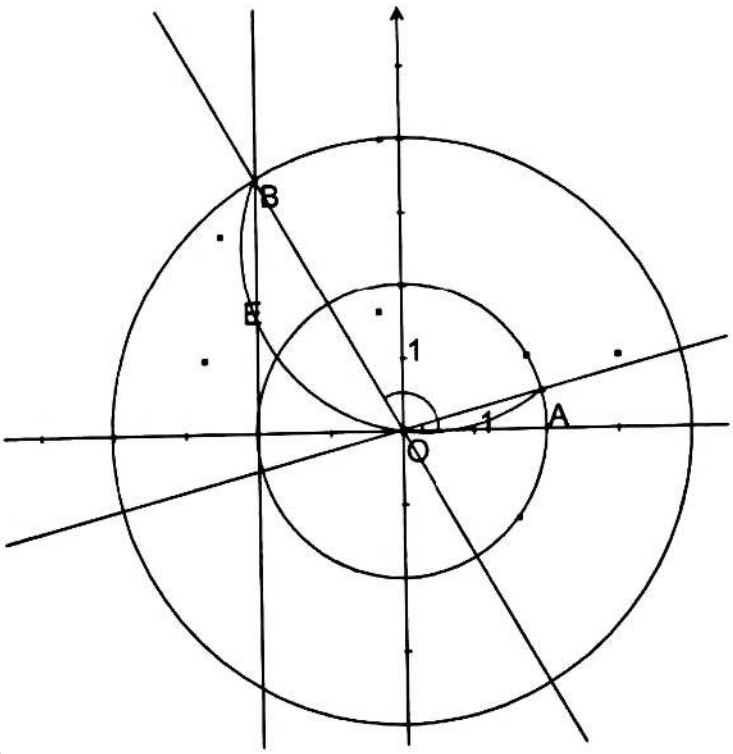

b)

$$Arg\left(\frac{iz+a^2}{z-a}\right)\equiv-\frac{11\pi}{12}(2\pi)\Leftrightarrow Arg\left(i\frac{\left(z-ia^2\right)}{z-a}\right)\equiv-\frac{11\pi}{12}(2\pi)\Leftrightarrow Argi+Arg\left(\frac{z-ia^2}{z-a}\right)\equiv-\frac{11\pi}{12}(2\pi)$$

$$\Leftrightarrow\frac{\pi}{2}+Arg\left(\frac{z-z_B}{z-z_A}\right)\equiv-\frac{11\pi}{12}(2\pi)\Leftrightarrow\frac{\pi}{2}+(\widehat{\overrightarrow{AM},\overrightarrow{BM}})\equiv-\frac{11\pi}{12}(2\pi)\Leftrightarrow(\widehat{\overrightarrow{MA},\overrightarrow{MB}})\equiv-\frac{17\pi}{12}(2\pi)$$

$$\Leftrightarrow(\widehat{\overrightarrow{MA},\overrightarrow{MB}})\equiv\frac{7\pi}{12}(2\pi)\qquad M\in\text{ Arc du cercle (E)}$$

$$\bullet\,(\widehat{\overrightarrow{OA},\overrightarrow{OB}})\equiv(\widehat{\overrightarrow{OA},\vec{u}})+(\widehat{\vec{u},\overrightarrow{OB}})(2\pi)\equiv(\widehat{\vec{u},\overrightarrow{OB}})-(\widehat{\vec{u},\overrightarrow{OA}})(2\pi)\equiv\frac{2\pi}{3}-\frac{\pi}{12}(2\pi)\equiv\frac{7\pi}{12}(2\pi)\Rightarrow O\in E$$

$$\bullet\,iz_1=e^{i\frac{\pi}{2}}.e^{i\frac{\pi}{6}}=e^{i\left(\frac{\pi}{2}+\frac{\pi}{6}\right)}=e^{2i\frac{\pi}{3}}\qquad\bullet\,\frac{z_2}{1+i}=\frac{2e^{-2i\frac{\pi}{3}}}{\sqrt{2}e^{i\frac{\pi}{4}}}=\sqrt{2}e^{i\left(-\frac{2\pi}{3}-\frac{\pi}{4}\right)}=\sqrt{2}e^{-\frac{11i\pi}{12}}$$

$$\bullet\,\frac{z_1}{z_2}=\frac{e^{i\frac{\pi}{6}}}{2e^{-2i\frac{\pi}{3}}}=\frac{1}{2}e^{i\left(\frac{\pi}{6}+\frac{2\pi}{3}\right)}=\frac{1}{2}e^{5i\frac{\pi}{6}}\qquad\bullet\,z_1.z_2.z_3=2\sqrt{2}e^{i\left(\frac{\pi}{6}-\frac{2\pi}{3}-\frac{\pi}{4}\right)}=2\sqrt{2}e^{-3i\frac{\pi}{4}}$$

EX 10 :

$$\bullet\,z_3^4=(\sqrt{2})^4.e^{4\left(-i\frac{\pi}{4}\right)}=4e^{-i\pi}=4e^{i\pi}\qquad\bullet\,\frac{z_2^3}{z_1^6}=\frac{8e^{-2i\pi}}{e^{i\pi}}=8.e^{i\pi}$$

$$\bullet\,\frac{\overline{z_2}}{z_3}=\frac{2e^{2i\frac{\pi}{3}}}{\sqrt{2}e^{-i\frac{\pi}{4}}}=\sqrt{2}e^{i\left(\frac{2\pi}{3}+\frac{\pi}{4}\right)}=\sqrt{2}e^{11i\frac{\pi}{12}}$$

Qarray.tn -Aqra Blech- Qarray.tn